SOLAR OBSERVATIONS

SOLAR AND SKY RADIATION MEASUREMENTS DURING AUGUST, 1925

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For a description of instruments and exposures and an account of the method of obtaining and reducing the measurements, the reader is referred to the REVIEW for January, 1924, **52** : 42 and January, 1925, **53** : 29.

From Table 1 it is seen that solar radiation measurements averaged slightly below normal values for August at Lincoln, Nebr., and close to normal at Washington, D. C., and Madison, Wis.

Table 2 shows that the total solar and sky radiation received on a horizontal surface averaged above the August normal at Washington and Madison, and slightly below normal at Lincoln.

At Washington skylight polarization measurements made on 5 days give a mean of 51 per cent, with a maximum of 56 per cent on the 22d. At Madison, measurements made on 5 days give a mean of 55 per cent with a maximum of 65 per cent on the 21st. These are slightly below the normal values for August at both Washington and Madison.

TABLE 1.—*Solar radiation intensities during August, 1925*

[Gram-calories per minute per square centimeter of normal surface]

Washington, D. C.

Date	Sun's zenith distance: 8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Noon
	75th mer. time	Air mass: A. M.					P. M.				Local mean solar time
	e.	5.0	4.0	3.0	2.0	[1] 1.0	2.0	3.0	4.0	5.0	e.
	mm.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mm.*
Aug. 1	11.81		0.78	0.88	1.04						9.47
10	16.79					1.20					14.10
14	19.23				0.91						17.37
15	15.11		0.56	0.72	0.93	1.17					14.10
17	15.65		0.62	0.77	0.97						12.24
19	14.10					1.05					15.65
21	14.60						1.08	0.95	0.86	0.65	15.11
22	8.18	0.76	0.87	1.04	1.24	1.43					7.29
24	11.38			0.75	0.92						10.97
25	12.68			0.74	0.85	1.02					12.24
26	13.61			0.64	0.82	1.21					14.10
Means		(0.76)	0.71	0.79	0.96	1.18	(1.08)	(0.95)	(0.86)	(0.65)	
Departures		+0.10	+0.03	+0.02	+0.03	−0.04	+0.07	+0.07	+0.12	±0.00	

TABLE 1.—*Solar radiation intensities during August, 1925*—Con.

Madison, Wis.

Date	Sun's zenith distance: 8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Noon
	75th mer. time	Air mass: A. M.					P. M.				Local mean solar time
	e.	5.0	4.0	3.0	2.0	[1] 1.0	2.0	3.0	4.0	5.0	e.
	mm.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mm.*
Aug. 4	11.81					1.00					12.24
10	11.38				1.07						12.24
21	8.18			1.13	1.28	1.44	1.22				8.48
26	11.81					1.30					11.38
28	10.59					1.25					10.97
31	12.24			1.06	1.25		1.18				9.47
Means				(1.10)	1.20	1.25	(1.20)				
Departures				+0.16	−0.10	−0.06	+0.14				

Lincoln, Nebr.

Aug. 1	9.83	0.73	0.83	1.00	1.19	1.39					8.18
4	11.81		0.70	0.84	0.97						11.38
8	15.65		0.62	0.82	1.02						17.37
14	12.24							0.80	0.60	0.50	14.10
15	13.61			0.95	1.11	1.30	1.02	0.89	0.76	0.68	15.11
17	14.10					1.29	1.10	0.90	0.76	0.65	18.59
18	15.65	0.69	0.81	0.93	1.08	1.30	0.98				17.37
22	9.83				1.08	1.34	1.08	0.88	0.72	0.59	12.68
23	12.24	0.68	0.79	0.92							16.20
24	10.97		0.76	0.93	1.10	1.32	0.98	0.78	0.63	0.52	14.60
25	15.11	0.41	0.47	0.63	0.92	1.18	0.85	0.58			16.20
26	12.24	0.49	0.60	0.73	0.92	1.19					13.13
27	15.11	0.40	0.47	0.61	0.83						13.13
28	11.38	0.45	0.53	0.69	0.88	1.22					14.10
31	11.38		0.84	0.98	1.17	1.38					15.65
Means		0.55	0.67	0.84	1.02	1.29	1.00	0.80	0.69	0.59	
Departures		−0.09	−0.10	−0.05	−0.05	±0.00	−0.07	−0.08	−0.06	−0.11	

[1] Extrapolated.

TABLE 2.—*Solar and sky radiation received on a horizontal surface*

[Gram-calories per square centimeter of horizontal surface]

Week beginning—	Average daily radiation: Washington	Madison	Lincoln	Chicago	New York	Average daily departure from normal: Washington	Madison	Lincoln
	cal.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
July 30	382	518	522	360	359	−77	+48	−12
Aug. 6	404	414	387	358	397	−46	−41	−129
13	530	392	511	338	370	+95	−49	+17
20	509	511	550	424	373	+90	+86	+68
27	511	430	491	480	433	+106	+27	+29
Excess since first of year on Sept. 2, 1925						+2,135	+2,233	+707